SCIENCE CURRICULUM 2022-23			
Base 1 =- YR/1			
Whole School Theme	**Here we are**	**Water**	**Powerful People**
Unit of Work	YR – The Natural World Y1 – Everyday Materials	YR – The Natural World Y1 – Seasonal Change (y1) Plants (y1)	YR – The Natural World Y1 – Animals Including Humans
Curriculum	YR Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them. Y1 Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials based on their simple physical properties	YR Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them. Y1 To observe changes across the 4 seasons To observe and describe weather associated with the seasons and how day length varies To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees To identify and describe the basic structure of a variety of common flowering plants, including trees	YR - ELG **Explore the natural world around them, making observations and drawing pictures of animals and plants.** **Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.** **Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.** **Y1** To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals To identify and name a variety of common animals that are carnivores, herbivores and omnivores To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
Prior Learning	New learning for EYFS (Previously Little Wrens) Y1 as YR in 2021-22 explored how objects feel and look different based on the material they are made from.	New learning for EYFS (Previously Little Wrens) Y1 as YR in 2021-22 will have explored the natural work around them. They will have described what they see, hear, and feel outside.	New learning for EYFS (Previously Little Wrens) Y1 as YR in 2021-2 will have made observations and drawings of animals and plants.

	Use different materials when painting and making art.	Children will have also had a simple understanding of the effects of the changing season on the natural work around them.	
Why this, why now?	YR By exploring the natural world and exploring seasonal changes, children will begin to develop an understanding of the natural world and explore changes through first hand experiences Y1 Everyday materials are viewed and used by the children. This will allow children to build on their existing knowledge of materials and their uses.	YR As the seasons have changed the days have become shorter and the nights longer – children will explore the differences between day and night, focusing on shadows. Children will be given the opportunities to explore shadows form natural light, as well as artificial light. Y1 Pupils will be using the local environment around them becoming familiar with deciduous and evergreen trees including plant structures. Children will be able to observe closely and compare familiar plants.	YR When visiting different countries around the world David Attenborough uses different types of transport, one of which is boats. Children will explore different materials suitable for a boat for 'mini' David Attenborough to travel down the jungle river. Y1 Pupils will be exploring the book Rumble in the Jungle where children will be exposed to a range of animals. This provides a good opportunity for children to identify and name a range of animals.

Core Learning	**YR** **Enquiry Question: Why are there so many leaves on the floor? What do seeds need to grow?** To explore the outdoor learning environment. To interact in natural processes. To sequence the key parts of the planting process. To discuss seasonal changes in a familiar environment. To use my senses to explore the outside. Y1 **Enquiry Question:** **Which materials are natural, and which are man-made?** **Concept: Materials** To know which materials some objects are made from. To know words to describe materials. To know which materials are man-made and which materials are not.	**YR** **Enquiry Question: Can you name some nocturnal animals? How are shadows made?** To talk about light and dark from my own experiences. To describe a shadow and explain how I make them. To join in and learn a rhyme about shadows. To change the size, position and direction of a shadow and explain how. To describe the differences between night and day. To explain why it is dark at night. To explain how I care for nocturnal animals. To talk about how recycling is caring for our world and sort items for recycling. To find the best material to make curtains for the doll's house through experimenting. Y1 **Enquiry Question:** **Can all animals be seen all year round?** **Concept: Change** To know what a season is and name to four seasons. To know what happens in the autumn. To know what happens in winter. To name some common garden plants. To name some common wild plants. To name what the parts of the common trees and plants are.	**YR** **Enquiry Question: Can find the best material to make a boat?** Changing State To observe and interact with the process of changing the state of Jelly and discuss the process. To observe and interact with the process of changing the state of Ice To investigate different ways of melting ice To name a familiar jungle animal and describe some of its distinguishing features To draw a jungle animal considering the size, shapes and patterns that have been observed. To explore a variety of materials to choose which could be used to make a boat Y1 **Enquiry Question:** **How can we group animals?** **Concept: Grouping** To know what vertebrate, mammals, fish, birds, reptiles, and amphibians are. To know what certain animals eat.

Opportunities for deepening learning *Know more and remember more.*	YR Provide children with have frequent opportunities for outdoor play and exploration. Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. Encourage interactions through hands on experiences Understand the effect of changing seasons on the natural world around them. Describe what they see, hear and feel whilst outside. **Y1** Children will explore, name, discuss raise and answer questions about everyday materials inside and outside of the school. Children can explore how the materials around the school have changed from its original structure in 1876. Look for signs of change in martials across the school (bricks, pegs)	YR Observe and interact with natural processes Observe and interact with natural processes. Offer opportunities to sing songs and join in with rhymes and poems about the natural world. Create opportunities to discuss how we care for the natural world around us. Offer opportunities to sing songs and join in with rhymes and poems about the natural world. **Y1** Children will be exploring seasonal and daily weather patterns in geography, and this will deepen the understanding of seasonal change. Children's understanding of plants will also deepen as they will explore how different weather patterns effects the growth of plants.	YR Observe, Measure & Pattern Spot: Observe and interact with natural processes, such a sound causing a vibration, light travelling through transparent material and a boat floating on water. Investigate: Observe and discuss simple tests. Identify & Classify: After close observation, draw pictures of the natural world, including animals and plants and name them. Question & Enquire: Ask simple questions. The Natural World (Science) Investigate: Observe and discuss simple tests. The Natural World (Science) Record, Report and Draw Conclusions: Talk about the conclusions of simple tests and record as a group. **Y1** Children will be able to deepen their knowledge of animals by creating finger puppets in DT. These puppets can have certain properties associated with animals and the structure of these animals.
Key Figure/Artist	Colin Eaton / June Morris		
Vocabulary	**YR** Compost, Tools, Scoop, Transfer, Natural, Cress, Grow, Water, Plant, Autumn, Season, Leaves, Senses, Signs, Rubbings, Collect, Natural, Patterns **Y1** absorbent, bendy, brick, dull, elastic, fabrics, foil, glass, man-made, metal, natural, opaque, plastic, rock, rough, shiny, smooth, soft, stiff, stretchy, transparent, waterproof, wood	**YR** Nocturnal, dark, lonely, frightened, safe, shadow, lighter, darker, torch, size, night, day, next, planet, earth, help, care, wildlife, pond, bat box, recycle, reuse, save, world, rubbish, curtains, block light, see through, opaque, darkness **Y1** branches, blub, common, deciduous, evergreen, flower, fruit, garden, herb, plant, leaves, petal, roots, stem, seed, tree, trunk, vegetable, weed, wild	**YR** Dissolve, cube, mould, fridge, hot, cold, firm, solid, liquid, melt, thaw, freeze, frozen, riddle, clue, question, test **Y1** backbone, carnivores, cold blooded, environment, farm, gills, herbivore, omnivore, pet, temperature, vertebrate, warm-blooded, wild

		autumn, cold, conkers, day length, freeze, hibernate, months, ice, nature, rain, season, snow, spring, summer, temperature, winter,	
Quick Quiz	**YR** What does a seed need to grow? What are the four seasons? What seasonal changes might you see in Autumn? **Y1** Name five different types of materials. What material is transparent? Is plastic man-made or natural? How could you describe the material elastic?	**YR** What is a nocturnal animal? Name a nocturnal animal? What is the name given to material that does Not let light through? What is the name given to a material that does let light through? **Y1** What season do leaves fall in? Describe the weather in the winter. What clothes would you usually wear in summer? What about winter? It always snow in winter. True or false?	**YR** What materials were waterproof? What materials were not waterproof? What did the ice turn into when melted? Can you name a jungle animal and describe its identifying feature? **Y1** What is an animal that gives birth do its young called? Name and animal which is not a suitable pet. What is the name of an animal that only eats meat? What is the name of an animals that only eats plants?
Discussion question/point:	**YR** What season are we in? What seed need to grow? **Y1** Why have the materials changed over time in school?	**YR** What can opaque materials be used for? What can transparent materials be used for? Why might you need to use opaque/transparent materials? **Y1** When do you think the most leaves would fall to the ground?	**YR** If you could be a jungle animal, what would you be and why? **Y1** What animal would you have as a pet? Why?

Science			
Base 2 – Year 1/2			
Whole School Theme	**Here we are**	**Water**	**Powerful People**
What does this mean to me? Why does this matter?			

Unit of Work	Everyday Materials (Y1 and 2)	Plants (Y1) Seasonal Change (Y1) Living things and their habitats (Y2)	Animals including humans (Y1) Plants (y2)
National Curriculum	Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials based on their simple physical properties To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	To observe changes across the 4 seasons To observe and describe weather associated with the seasons and how day length varies To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees To identify and describe the basic structure of a variety of common flowering plants, including trees To explore and compare the differences between things that are living, dead, and things that have never been alive To identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other To identify and name a variety of plants and animals in their habitats, including microhabitats To describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food	To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals To identify and name a variety of common animals that are carnivores, herbivores and omnivores To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense To observe and describe how seeds and bulbs grow into mature plants To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
Prior Learning	Y2 in Y1 (B1 2021-22) Objects are things that you can touch or see. Objects are made from materials. Some materials that objects are made from (e.g. glass, wood, plastic) Some words to describe materials (e.g. shiny, soft, rough absorbent)	In reception, Y1 (B1 2021-22) will have explore the natural work around them. They will have described what they see, hear, and feel outside. Children will have also had a simple understanding of the effects of the changing season on the natural work around them. Year 2 in Y1 (B2) looked at common plants and types of trees. The know that animals need food, air, and water	In reception, Y1 (B1 – 2021-22) children will have made observations and drawings of animals and plants. In Y1 (B1 2021-22) , Y2 children named and identified a variety of plants and animals in their habitats, including the names of parts of plants.

	Materials which are natural, and which are man-made.	to survive. They know that animals can be grouped into categories.	
Why this, why now?	Every day materials are viewed and used by the children. This will allow children to build on their existing knowledge of materials and their uses.	Children will be carefully observing a microhabitat identifying the plants that they find. This will build on their knowledge from previous year on living things and their habitats. Pupils will be using the local environment around them becoming familiar with deciduous and evergreen trees including plant structures. Children will be able to observe closely and compare familiar plants.	Year 1 pupils will be exploring the book Rumble in the Jungle where children will be exposed to a range of animals. This provides a good opportunity for children to identify and name a range of animals. Y2 children will be linking their learning of plants to the local area studying Nantwich.
Core Learning	Concept: Materials Materials are used for different purposes based on their properties. For example, wood is used to make furniture and floors. Metal can be used to make coins, cans, cars, and cutlery. Glass can used to make windows. The shape of some materials can be changed when they are stretched, twisted, bent and squashed. Enquiry Question: Which materials are some objects made from? What words can I use to describe materials? Which materials are natural, and which are man-made?	**Concept:** To know what a season is and name to four seasons. To know what happens in the autumn. To know what happens in winter. To name some common garden plants. To name some common wild plants. To name what the parts of the common trees and plants are. To know what a microhabitat is. To know how animals and plants depend on each other. **Enquiry Question:** Can all animals be seen all year round?	**Concept:** To know what vertebrate, mammals, fish, birds, reptiles, and amphibians are. To know what certain animals eat. To know that plants are living things that require things to grow. To know which plants we eat. To know what the parts of common tree and plants are. **Enquiry Question:** How can we group animals? How can you tell if a plant is alive or dead?
Opportunities for deepening learning *Know more and remember more.*	Children will explore, name, discuss raise and answer questions about everyday materials inside and outside of the school. Children can explore how the materials around the school have changed from its original structure in 1876. Look for signs of change in martials across the school (bricks, pegs)	Children can deepen their understanding of seasons by looking at different countries in the world and the location of hot and cold counties. Children can also deepen their thinking by making links to plants and seasonal change.	Children can deepen their understanding of plants in the local area. Why do they grow here and what do they need to survive?
Key Figure / Artist	John Dunlop, Charles Macintosh and John McAdam		

Vocabulary	absorbent, bendy, brick, dull, elastic, fabrics, foil, glass, man-made, metal, natural, opaque, plastic, process, properties, purpose, recyclable, rock, rough, shiny, smooth, soft, squash, stiff, stretchy, suitable, transparent, twist, unsuitable, waterproof, wood	branches, blub, common, deciduous, evergreen, flower, fruit, garden, herb, plant, leaves, petal, roots, stem, seed, tree, trunk, vegetable, weed, wild autumn, cold, conkers, day length, freeze, hibernate, months, ice, nature, rain, season, snow, spring, summer, temperature, winter, biomes, carnivore, depend, food chain, habitat, herbivore, invertebrate, microhabitat, offspring, omnivore, plant, tree, vegetation, vertebrate	backbone, carnivores, cold blooded, environment, farm, gills, herbivore, omnivore, pet, temperature, vertebrate, warm-blooded, wild branches, bulb, common, crop, evergreen, flower, flowering, fruit, herb, leaf, leaves, petal, plant, stem, roots, seed, tree, trunk, vegetables, weed, wild
Quick Quiz	What material is most suitable to make a window? Why is glass the most suitable material to make a window with? Why do children drink out of a plastic cup rather than a glass cup like adults? Match these properties of materials to the uses they are most suitable for? Raincoat — soft A pillow — absorbent A sponge — waterproof A table — stiff	What season do leaves fall in? Describe the weather in the winter. What clothes would you usually wear in summer? What about winter? It always snow in winter. True or false? What does woodlouse need to survive? How do works keep their habitat healthy? Describe to me a food chain.	What three things do living plants do? What is needed for a plant to grow well? What part of a plant are the following vegetables? Cauliflower, carrot, cabbage, celery

Science			
Base 3 – Year 3/4			
Whole School Theme	**Here we are**	**Water**	**Powerful People**
What does this mean to me? Why does this matter?			
Unit of Work	Y3 Plants Y4 Digestive systems Y3 Animals including Human	Y3 Animals including Humans Y4 Living things and their habitats	Y4 Sound Y4 State of Matter

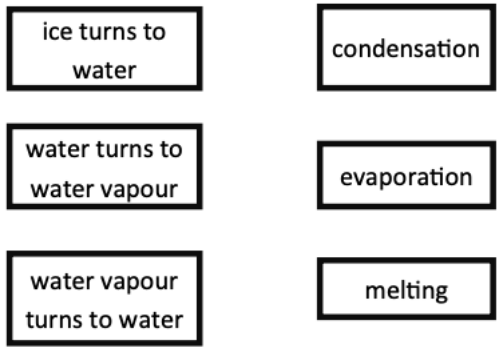
National Curriculum	**Y3 Plants** To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant To investigate the way in which water is transported within plants To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal **Working scientifically** Setting up simple practical enquiries, comparative and fair tests. Ask relevant questions and using different types of scientific enquiry to answer them. **Y4 Digestive system** To describe the simple functions of the basic parts of the digestive system in humans **Y3 Animals including Humans** To identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat	**Y3 Animals including Humans** To identify that humans and some other animals have skeletons and muscles for support, protection, and movement. Animals/ creatures from book **Y4 Living things and their habitats** To recognise that living things can be grouped in a variety of ways. To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment To recognise that environments can change and that this can sometimes pose dangers to living things.	**Y4 Sound** To identify how sounds are made, associating some of them with something vibrating To recognise that vibrations from sounds travel through a medium to the ear To find patterns between the pitch of a sound and features of the object that produced it To find patterns between the volume of a sound and the strength of the vibrations that produced it To recognise that sounds get fainter as the distance from the sound source increases. **Y4 State of Matter** Compare and group materials together, according to whether they are solids, liquids or gases To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
Prior Learning	In 2020/21, Y4 as Y2 looked at what things are living and what is not living; flowering plants; seeds, bulbs and mature plans. In 2020/21, Y4 as Y2 looked at how animals can be grouped into carnivores, herbivores, and omnivores and the differences between the teeth of these animals. The names of some common wild and garden plants and deciduous and evergreen trees.	**Y3 Animals including Humans** In 2020/21 Y4 in Y2 looked at the parts of the human body and what they do. There are five types of vertebrates (mammals, fish, reptiles, amphibians, birds). Vertebrates are animals that have a backbone. Invertebrates are animals that do not have a backbone. All animals need water, air and food to survive. The different ways in which humans can be healthy.	In 2020, Y4 in Y2 looked at hearing as one of the five senses. The also looked at how sounds can be combined using musical instruments and what the word vibrations means. In 2020-21, Y4 in Y2 (B2) and Y3 2021-22 in Y2 (B2) looked at why materials are used for a certain purpose because of their properties. They also

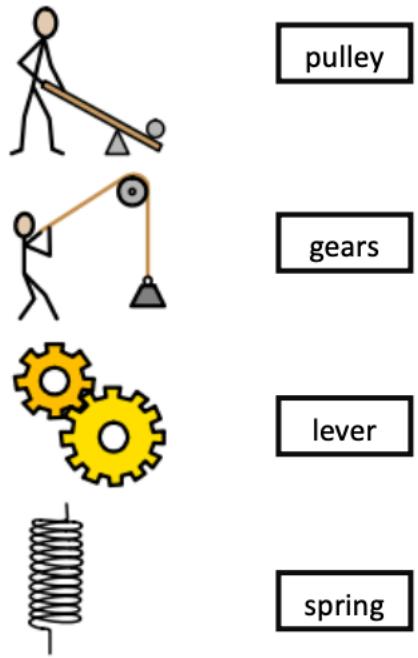
	Living things depend on each other to survive.	**Y4 Living things and their habitats** In 2020/21 Y4 in Y2 looked at how animals can be grouped into vertebrates (and then further into fish, reptiles, amphibians, birds and mammals) and invertebrates. Animals can be grouped into carnivores, herbivores and omnivores. The differences between the teeth of carnivores and herbivores. The names of some common wild and garden plants and deciduous and evergreen trees. Examples of habitats (including microhabitats) and the animals and plants that can be found there. Living things depend on each other to survive. How food chains and food webs work. How land use has changed over time and the effects this has on the environment (e.g. urban development)	looked at the water cycle, and the processes of evaporation, condensation, and perception.
Why this, why now?	In design and technology, children are going to be developing their knowledge of healthy diets and plant growth and digestion is an important connection that needs to be made to develop this learning. In geography, children will be identifying regions across the UK and the link between animals and their habitats will enable stronger connections to habitats.	Children have grouped animals into categories and by using this prior knowledge, they are able to explore and use classification keys taught in this unit. Children will look at animals from their local environment and wider. Children will be able to make the link to geography with changing environments and the impact on living things. In computing, children will be using software to group data which provides a good opportunity to develop their scientific classifying using computing data classification keys.	Children have previously looked at the senses and in this unit, children will develop their understanding of sound travel. Children will have also looked at materials and their properties grouping these materials. This moves the learning forward by looking at how materials can be liquids, solids or gases and how they change state when heated or cooled.
Core Learning	**Concept: Plants** **Enquiry Question:** How can environments change? The functions of different parts of flowering plants. What do different plants need to grow? How is water transported within plants? How do flowers help the life cycle of flowering plants? **Concept: The digestive system** **Enquiry Question:**	**Concept: Classifying animals** Observe minibeasts in a microhabitat and use a classification key to identify them. **Enquiry Question:** What is a classification key? **Concept: Grouping living things** **Enquiry Question:** Are all animals' skeletons different?	**Concept: State or Matter** **Sounds** **Enquiry Question:** What is sound? What is the effect of temperature on substances such as chocolate, butter, and cream?

	To name the parts of the digestive system To explain the functions of each part of the digestive system		
Opportunities for deepening learning *Know more and remember more.*	Children will use their understanding of digestion and plants when designing their healthy diets. Children will link the learning about the digestion system and plants to history exploring what would have been eaten during the Stone, Bronze and Iron Age.	Children will deepen their understanding of classifying animals by linking learning to computing and classification keys. Children will be able to produce their own classification to based on their learning in science.	Children can link their knowledge of sound to the religious ceremonies that were performed by The Romans. Children can look at traditional Roman instruments and how they were used to create different sounds.
Key Figure / Artist	-	Alfred Russel Wallace	
Vocabulary	deciduous, environment, evergreen excretion, food chain, nutrition, omnivore, reproduction, respiration, urban, vegetation,	backbone, bones, contact, elbow, endoskeleton, exoskeleton, joints, muscles, organs, protect, relax, skeleton, support, tendons, vertebrate biomes, carnivore, classification key, deciduous, environment, food chain, herbivore, life process microhabitat, minibeast, nutrition, omnivore, reproduction vegetation, vertebrate	condensation, cooling, evaporation, freezing, gas, heating, liquid, melting, melting point, particles, precipitation, process, properties, solid, water cycle, water vapour
Quick Quiz	What is the process called where the human body gets rid of waste? What is the name of the substance that breaks down food in the mouth called? What carries food from the mouth to the stomach? What are the names of the parts of a flowering plant? What is the function of (part of plant)? How do you set up a fair test?	Name an animal that is not a vertebrate. A duck and fish are similar because? Name the similarities and differences between a swan and an owl. What part of the skeleton protects the brain? What part of the skeleton protects the lungs? What is the purpose of a skeleton?	How is a sound made? How does sound travel? How do we measure sounds? On a stinged instrument, pitch can be change how? Name the process that describes the change from water to ice. What is condensation? What is the freezing point of water? Explain why puddles get smaller after it has rained.

Science			
Base 4 – Year 4/5			
Whole School Theme	**Here we are**	**Water**	**Powerful People**
What does this mean to me? Why does this matter?			
Unit of Work	Y4 Changing state (steam link) Y5 Properties and change in materials	Y4 Living Things and their habitat	Y5 Forces
National Curriculum	To compare and group materials together, according to whether they are solids, liquids or gases To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	To recognise that living things can be grouped in a variety of ways To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment To recognise that environments can change and that this can sometimes pose dangers to living things	To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object To identify the effects of air resistance, water resistance and friction, that act between moving surfaces To recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect

	To demonstrate that dissolving, mixing and changes of state are reversible changes To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda		
Prior Learning	In 2021/22 Y4 in Y3(B3) looked at which materials are magnetic and that some rocks are permeable. In 2021/22 Y5 in Y3 (B3) looked at materials, rocks and the changing state.	In 2020/21 Y4 in Y2(B2) and Y5 in 2019/20 Y2 (B2) explored the difference between living things, dead things and things that have never been alive. They identified habitats in a variety of plants and animals including microhabitats. They also described how animals obtain their food from plants and other animals, including the use of a simple food chains, and they identified and named different sources of food.	In 2021-22, Y4 in Y3 (B3) and Y5 in 2020-21 (B3) looked at how a force can be a push or a pull. They know that when a force is applied to an object, it will move or stop. They also explored the strength of a force.
Why this, why now?	In History, the children are looking at a turning point in transportation and how steam powered trains made travel more accessible across the county. This would not be possible if inventors had not created the steam locomotive. Children will build connections between heating and cooling and the change of state.	Building on knowledge of living things and their habitats in Y2, this class will be linking their learning to the environment and land use patterns, and how these can change over time leading to a change in habitats for living things.	Children have previously looked at what forces are, how they are applied and what different effect forces have. In this unit, children will explore further forces looking at gravity and air resistance, water resistance, and mechanisms.
Core Learning	**Concept: Changing state and properties and changes in materials** **Enquiry Questions:** What is a gas, solid and liquid? What happens to particles in the water when it is heated or cooled? What is the water cycle? How to group materials based on their properties using more complex vocabulary. What are thermal insulators and conductors? What are electrical insulators and conductors? What is dissolving? Can materials be separated after they have been mixed?	**Concept: Classifying living things** To know that living things can be classified into different categories. To know that habitats can change over the year, and this can have an effect on the animals living there. To know how humans can have positive and negative effects on the environment. **Enquiry Question:** How can living things be grouped?	**Concept:** To know what forces will have what effect. To know what gravity is and what air resistance is. To know the effects of water resistance. To know the effect of levers, pulleys, gears, and springs. **Enquiry Question:** Which mechanism would be best for a bridge?

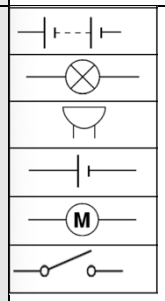
Opportunities for deepening learning *Know more and remember more.*	Making connections to history and the turning point in UK history and the first railways. Making connections to DT learning and designing a train (cams).	Making connections to geography, children can carefully observe minibeasts in a microhabitat. Children can also use computing software to create branching databases. With further links to geography, children can explore the human impact (both positive and negative) on the environment.	Making connections to design and technology, as children will be making boats when learning about Anglo-Saxons, and Vikings. Children can apply their knowledge of pulleys and levers and demonstrate and understanding of water resistance when designing boats.
Key Figure / Artist	Thomas Savery		
Vocabulary	condensation, conductor, dissolve, evaporation, filtering, gas, insoluble, insulator, irreversible, liquid, magnetic, melting, particles, solid, thermal, variable, water cycle	biomes, carnivore, classification key, deciduous, evergreen, herbivore, invertebrate, microhabitat, nutrition, omnivore, organism, reproduction, respiration, urban, vegetation, vertebrate	attract, friction, force, gear, gravity, lever, motion, opposite, pulley, repel, resistance, spring, streamlined, surface
Quick Quiz	What do thermal insulators do? Name the process that describes a change from water to ice. Match these changes to the scientific name:  What is the freezing point of water? Give two examples of electrical conductors. What are materials that dissolve called? What is it called when solid particles mix with liquid particles? Describe how to a mixture of sand, paper clips and water.	Name an animal that is not a vertebrate. A dish and fist are similar because? Name the similarities and differences between a swan and an owl.	Pushing and pulling has what effect on an object? Which force pulls objects towards the ground? A force that slows a moving object down is called what? Match the names of the mechanism to the picture.

	Give an example of a reversible change and an irreversible change.		

Science			
Base 5 – Year 6			
Whole School Theme	**Here we are**	**Water**	**Powerful People**
What does this mean to me? Why does this matter?			
Unit of Work	Electricity and Light Evolution and adaptation	Animals Including Humans	Living things and their habitats

National Curriculum	To recognise that light appears to travel in straight lines. To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit To compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches To use recognised symbols when representing a simple circuit in a diagram To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. To recognise the impact of diet, exercise, drugs and lifestyle on the way their body's function. To describe the ways in which nutrients and water are transported within animals, including humans.	To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals To give reasons for classifying plants and animals based on specific characteristics
Prior Learning	As Y6 in Y5 (B5 and B4) , children looked at how sound travels in waves. Y6, in Y4, (Base 4 2020-21) children looked at electricity and made simple circuits. Y6 in Y5, (Base 4 21-22) looked at electricity and made simple circuits.	As Y6 in Y5 (B4 2021-22), children looked at: which things are living, and which are not. Classification of animals (e.g. amphibians, reptiles, birds, fish, mammals, invertebrates) Animals that are carnivores, herbivores, and omnivores. Animals have offspring which grow into adults. The basic needs of animals	As Y6 in Y4 (B4 2020-21), children looked at: Animals can be grouped into carnivores, herbivores and omnivores. They can also be grouped into vertebrates and invertebrates. Organisms can be classified, and we can use a classification key to identify them. Examples of

	In Y3, Y6 (B3 2019-20) looked at how fossils are formed when things have been lived and trapped within rocks.	for survival (water, food, air) The importance of exercise, hygiene, and a balanced diet. Animals get nutrition from what they eat. Some animals have skeletons for support, protection, and movement. The basic parts of the digestive system. The different types of teeth in humans. Respiration is one of the seven life processes. The life cycle of a human and how we change as we grow.	habitats (including microhabitats) and the organisms that can be found there. Living things depend on each other to survive.
Why this, why now?	Light- The children have been creating installations in art which focus on light and colour, as part of this they have been creating effects using microcontrollers. Connecting this with our science learning will help to make learning secure.	During this term, children are going to be deepening their understanding of living things by focusing on the human body. Building on their knowledge of parts of the digestive system, nutrition and respiration, children will develop an understanding of the circulatory system including the heart and the effects of exercise on the body.	Children have previously classified animals using broad categories. This unit will enable children to classify animals, including microorganisms, on specific characteristics and how animals have adapted their characteristics to meet the needs of their environment.
Core Learning (see also National Curriculum)	**Concept: Light, Electricity and Evolution and Adaptability** **Enquiry Questions:** What is the relationship between light sources and shadows? How do we see? Predict and investigate what happens when you add more than on bulb/motor/buzzer. What is evolution? How do we know about evolving? What is adaptation?	**Concept: Animals Including Humans** To know what the circulatory system is for. To identify the components of blood, describe their functions. To know the three types of blood vessel To know choices that can harm the circulatory system. To be able to name parts of the circulatory system on a diagram. **Enquiry Question:** What choices that can harm the **circulatory system?** Why is exercise so important?	**Concept: Living things and their habitats** To know living things can be grouped according to their characteristics. To know what microorganisms are. **Enquiry Question:** How can living things be grouped?
Opportunities for deepening learning	Making connections to DT with electrical system in a product. Making links to Cragside and lighting up his house by using hydropower which links to the	Making connections to PE with the skill of running. How can running impact on the circulatory system? What happens to the body when exercise increase? What increases the heart rate most in sport?	Making connections to Greek myths and classifying mythological creatures using classification keys. Children can create their own

Know more and remember more.	natural trust. Lord and Lady Armstrong planted thousands of tree and change the landscape which makes connections to adaptation and evolution.		classification key to identify mythological creatures.
Key Figure / Artist	Charles Darwin.	Adam Peaty – English swimmer who champions a healthy lifestyle.	Carl Linnaeus
Vocabulary	adaptation, evolution, inherit, maladaptation, mutation, natural selection, offspring, variation appliances, component, generate, motor, resistance, voltage dark, dim, emits, opaque, translucent, transparent	aorta, arteries, atrium, blood vessels, capillaries, carbon dioxide, circulatory system, deoxygenated, heart, lungs, nutrients, organ, oxygen, oxygenated, pulse, respiration, veins, vena cava, ventricle, via	adaptation, carnivore, characteristics, classification key, criteria, energy, environment, evolution, food chain, habitat, herbivore, invertebrate, microhabitat, omnivore, organism, predator, prey, species, vertebrate
Quick Quiz	 A gradual change of many generations is called . . . Evidence of evolution can be found in? If an animal is unable to adapt, what will happen to it? What are the names of these components? Explain what will happen if you add more bulbs to a circuit. When light bounces off a surface, we call this? Shadows are formed when? What does opaque mean? How do we see an object?	What is the name of the system that makes up the heart, blood, vessels, and lungs? Which of these are not an organ? Heart, lungs, or blood. What is the most effective chart for showing a change in pulse rate over time? Do veins carry oxygenated blood or deoxygenated blood? Name two activities that would increase a pulse rate. Name two factors that can harm our body. Arteries, veins and capillaries are all examples of blood _____? What is the function of blood in the body?	Name an animal that is not a vertebrate. Give an example of a microorganism. Give an example of a microorganism being helpful. Give an example of a microorganism being harmful. Give an example of how food is preserved to stop it from going mouldy. Create your own classification key to sort the following animals.  human fox owl spider

Discussion question/point:	Natural selection has not had an impact on living things on this planet. Discuss.	Should we avoid everything that harms our body?	Is there any value in classifying animals?